high tech institute

Applied optics

Price:	€ 2,775.00 excl. VAT
Duration:	15 afternoon sessions
Contact:	training@hightechinstitute.nl, +31 85 401 3600

Intro

People who don't have to design (specify, test, ...) optical systems but are working in projects with optics together with optical designers and want to know more about optical principles, will benefit from this application-oriented course. By learning the 'optical language' and understanding the principles of optical systems, non-optical engineers are able to collaborate more effectively with their optical expert team members. This makes the whole system engineering team more successful.

Program

- An introduction to light;
- Electromagnetic waves;
- Geometrical optics and ray tracing;
- Optical aberrations and system design;
- Diffraction;
- Interference;
- Polarisation and Birefringence;
- Optical systems;
- Light-matter interaction;
- Light sources and detectors;
- Tour to a small design and manufacturing company of mechanical and optical components during this Eindhoven edition;
- Optical measurement and testing;
- Illumination for optical inspection;
- Optical lithography (2 lessons).

The lessons include many demonstrations and are intermixed with hands-on sessions, as:

- Determination of refractive index of perspex and water using critical angle and Brewster angle;
- Total internal reflection;
- Gaussian imaging optics;
- Optical aberrations;
- Laser beam diffraction and interference;
- The diffraction grating;
- Polarisation;
- Measuring optical activity of sugar solution;
- The spectrometer;
- Spectroscopy.

The 5 hands-on sessions take 4 hours, the other sessions take 3 hours.
Study load excluding the class sessions: 3 hours a week.

Intended for

People with a non-optical background (e.g. electronics, mechanics, chemistry), who work in projects with optics and want to increase their level of understanding of optical principles and applications. Technical college/university level.

Certified by

Certification

This course is certified by the European society for precision engineering & nanotechnology (euspen) and the Dutch Society for Precision Engineering (DSPE) and leads to the ECP2-certificate in case homework results are sufficient.

Course leader

Hans Vink MSc

Trainers

Jan Jaap Krikke MSc
Theo Haddeman BSc
Dr. Jean Schleipen

Methods

Lectures, demonstrations, hands-on sessions, tour, home assignments. Course material: course notes, book. Award: certificate in case home work results are sufficient.